

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended)

A thermal processing susceptor holding a substrate subjected to thermal processing comprising:

a flat receiving surface having a region larger than the planar size of said substrate; and
a tapered surface annularly enclosing the peripheral edge of said receiving surface for specifying said receiving surface, wherein

the lower end of said tapered surface is concatenated to said peripheral edge of said receiving surface and said tapered surface is formed to upwardly broaden while the gradient of said tapered surface with respect to said receiving surface is at least 5° and less than 30°[[]], and
the average surface roughness of said tapered surface is not more than 1.6 μm.

Claim 2 (canceled)

Claim 3 (currently amended)

A thermal processing susceptor holding a substrate subjected to thermal processing, comprising a cavity storing said substrate in thermal processing, wherein

said cavity has a flat bottom surface and an inclined surface annularly enclosing the peripheral edge of said bottom surface, ~~and~~

the gradient of said inclined surface with respect to said bottom surface is at least 5° and less than 30°[[]], and

the average surface roughness of said inclined surface is not more than 1.6 μm.

Claim 4 (canceled)

Claim 5 (currently amended)

A thermal processing apparatus irradiating a substrate with flash light thereby heating said substrate, comprising:

a light source having a plurality of flash lamps;

a chamber, provided under said light source, comprising a chamber window enabling transmitting flash light emitted from said light source ~~on its upper portion~~; and

a holding element substantially horizontally holding said substrate in said chamber, wherein

said holding element has a thermal processing susceptor comprising:

a flat receiving surface having a region larger than the planar size of said substrate where flash light from said plurality of flash lamps heats said substrate received on said flat receiving surface to temperature on the order of 1000°C, and

a tapered surface annularly enclosing the peripheral edge of said receiving surface for specifying said receiving surface, and

the lower end of said tapered surface is concatenated to said peripheral edge of said receiving surface and said tapered surface is formed to upwardly broaden while the gradient of said tapered surface with respect to said receiving surface is at least 5° and less than 30°.

Claim 6 (original)

The thermal processing apparatus according to claim 5, wherein the average surface roughness of said tapered surface is not more than 1.6 μm.

Claim 7 (currently amended)

The thermal processing apparatus according to claim 6, wherein

each of said plurality of flash lamps is a xenon flash lamp, and

said holding element further has an assistive heater preheating held said substrate.

Claim 8 (currently amended)

A thermal processing susceptor holding a substrate subjected to thermal processing, comprising:

a flat receiving surface having a region larger than the planar size of said substrate;
a first tapered surface annularly enclosing the peripheral edge of said receiving surface for specifying said receiving surface; and

a second tapered surface annularly enclosing the peripheral edge of said first tapered surface, wherein

the lower end of said first tapered surface is concatenated to said peripheral edge of said receiving surface and the lower end of said second tapered surface is concatenated to the upper end of said first tapered surface while said first tapered surface is formed to upwardly broaden, an opening specified by the upper end of said second tapered surface is wider than said receiving surface, and the gradient of said second tapered surface with respect to said receiving surface is larger than the gradient of said first tapered surface[.],

the gradient of said first tapered surface with respect to said receiving surface is at least 5° and less than 30°, and

the average surface roughness of said first tapered surface is not more than 1.6 μm.

Claims 9-10 (canceled)

Claim 11 (currently amended)

The thermal processing susceptor according to claim ~~10~~ 8, wherein
the gradient of said second tapered surface with respect to said receiving surface is at least 45° and not more than 90°.

Claim 12 (currently amended)

A thermal processing apparatus irradiating a substrate with flash light thereby heating said substrate, comprising:

a light source having a plurality of flash lamps;

a chamber, provided under said light source, comprising a chamber window transmitting flash light emitted from said light source on its upper portion; and

a holding element substantially horizontally holding said substrate in said chamber,
wherein

said holding element has a thermal processing susceptor comprising:

a flat receiving surface having a region larger than the planar size of said substrate where
flash light from said plurality of flash lamps heats said substrate received on said flat receiving
surface to a temperature on the order of 1000°C, and

a first tapered surface annularly enclosing the peripheral edge of said receiving surface
for specifying said receiving surface, and

a second tapered surface annularly enclosing the peripheral edge of said first tapered
surface, and

the lower end of said first tapered surface is concatenated to said peripheral edge of said
receiving surface and the lower end of said second tapered surface is concatenated to the upper
end of said first tapered surface while said first tapered surface is formed to upwardly broaden,
an opening specified by the upper end of said second tapered surface is wider than said receiving
surface, and the gradient of said second tapered surface with respect to said receiving surface is
larger than the gradient of said first tapered surface.

Claim 13 (currently amended)

The thermal processing apparatus according to claim 12, wherein

each of said plurality of flash lamps is a xenon flash lamp, and

said holding element further has an assistive heater preheating held said substrate.

Claims 14-16 (canceled)

Claim 17 (new)

A thermal processing apparatus irradiating a substrate with flash light thereby heating
said substrate, comprising:

a light source having a plurality of flash lamps;

a chamber, provided under said light source, comprising a chamber window transmitting flash light emitted from said light source on its upper portion; and

a holding element substantially horizontally holding said substrate in said chamber, wherein

said holding element has a thermal processing susceptor comprising:

a flat receiving surface having a region larger than the planar size of said substrate where flash light from said plurality of flash lamps heats said substrate received on said flat receiving surface to a temperature on the order of 1000°C, and

a tapered surface annularly enclosing the peripheral edge of said receiving surface for specifying said receiving surface, wherein

the lower end of said tapered surface is concatenated to said peripheral edge of said receiving surface while said tapered surface is formed to upwardly broaden, and

said tapered surface has such a gradient that an end of said substrate slides up along said tapered surface when said substrate thermally expands while said end is in contact with said tapered surface.

Claim 18 (new)

The thermal processing apparatus according to claim 17, wherein

only the surface of said substrate expands and convexly warps when said substrate thermally expands.

Claim 19 (new)

A thermal processing apparatus irradiating a substrate with flash light thereby heating said substrate, comprising:

a light source having a plurality of flash lamps;

a chamber, provided under said light source, comprising a chamber window transmitting flash light emitted from said light source on its upper portion; and

a holding element substantially horizontally holding said substrate in said chamber, wherein

said holding element has a thermal processing susceptor comprising:

a flat receiving surface having a region larger than the planar size of said substrate where flash light from said plurality of flash lamps heats said substrate received on said flat receiving surface to a temperature on the order of about 1000°C, and

a tapered surface annularly enclosing the peripheral edge of said receiving surface for specifying said receiving surface, wherein

the lower end of said tapered surface is concatenated to said peripheral edge of said receiving surface while said tapered surface is formed to upwardly broaden, and

said tapered surface has such a gradient that an end of said substrate slides up along said tapered surface without restricting thermal expansion of said substrate when said substrate received on said receiving surface thermally expands and said end comes into contact with said tapered surface.